

**Data from the Commercial
Fisheries for Lake Whitefish,
Coregonus clupeaformis (Mitchill),
on Great Slave Lake, Northwest
Territories, 1981**

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ERRATA SHEET

Cover: Title - Fisheries should read Fishery

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NORTHWEST TERRITORIES, 1981

by

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ABSTRACT

Roberge, M.M., G. Low, and C.J. Read. 1982. Data from the commercial fishery for lake whitefish, Coregonus clupeaformis (Mitchill), on Great Slave Lake, Northwest Territories, 1981. Can. Data Rep. Fish. Aquat. Sci. 335: iv + 21 p.

Data from the fish plant sampling on the Great Slave Lake commercial fishery, summer and partial winter, are presented. Production and catch per unit of effort by vessel type at weekly intervals by fishing area are shown. A total of 2902 lake whitefish were sampled for age, length and weight.

Key words: catch composition; catch/effort; catch statistics; commercial fishing; exploitation; fishery management; life history; mesh regulations; monitoring.

RESUME

Roberge, M.M., G. Low, and C.J. Read. 1982. Data from the commercial fishery for lake whitefish, Coregonus clupeaformis (Mitchill), on Great Slave Lake, Northwest Territories, 1981. Can. Data Rep. Fish. Aquat. Sci. 335: iv + 21 p.

L'étude présente les données découlant d'un échantillonnage à une usine de traitement du poisson dans le Great Slave Lake, à l'été et à l'hiver partiel. Elles montrent la production et la prise par unité d'effort, à des intervalles hebdomadaires, par type de bateau et par zone de pêche. On a prélevé 2902 grands corégones pour en déterminer l'âge, la longueur et le poids.

Mots-clés: composition de la prise; prise/effort; statistiques des prises; pêche commerciale; exploitation; gestion de la pêche; cycle évolutif; réglementation du maillage; surveillance.

INTRODUCTION

In 1971, the Department of Fisheries began a long term stock assessment and monitoring program designed to collect information considered essential for the sound management of the Great Slave Lake commercial fishery, consistent with the recommendations of the Great Slave Working Party (1969). The objectives of this program are:

- i) to maintain a record of the total commercial landings (production) by species, by weight and by administrative area;
- ii) to monitor the catch per unit effort (CPE), cullage and change in relative abundance of all fish species landed through sampling of commercial net hauls;
- iii) to assess the change in age, size, growth rate and mortality - especially in lake whitefish, and
- iv) to assess the population structure of the various fish species.

In order to meet these objectives, a three component field study was implemented. This consisted of:

- i) Fish plant sampling - monitoring the landings of all commercial species and sampling the catch for biological information (age, length, weight), with special emphasis on lake whitefish;
- ii) Fishery observations - monitoring the catch per unit of effort, cullage and relative abundance of all species landed, and
- iii) Experimental netting - setting standard gangs of gillnets in the traditional commercial fishing areas of the lake.

Results of this work for the years 1972 to 1980 have been described by Bond (1974a, b; 1975a, b), Bond and Turnbull (1973), Moshenko et al. (1978; 1981) and Moshenko and Low (1978a, b; 1979; 1980).

During 1981, two components (fish plant sampling and experimental netting) of the program were carried out. This report summarizes, in tabular form the data gathered from fish plant sampling. Data from the 1981 experimental netting combined with the 1980 data will be published separately.

STUDY AREA

Great Slave Lake lies in the southwest corner of the District of Mackenzie, Northwest Territories (Fig. 1). It is the fifth largest lake in North America, having a surface area of 27,195 km² and a drainage area of 985,300 km². Stretching 440 km from its extreme east end to the outlet of the Mackenzie River, the lake straddles two physiographic regions. The northeast shore of the north arm and the east arm lie within the Precambrian Shield and have irregular, precipitous margins. The western portion

of the lake overlies the alluvial plain known as the Mackenzie Lowlands and has few islands and gently sloping shores. The rivers entering the lake from the Shield are cold, clear and rapidly flowing while those entering from the south are slow flowing brown water streams laden with silt during spring and early summer. While the western basin has a maximum depth of about 165 m and a mean depth of 42 m, a depth of 625 m has been recorded in the east arm. Physical and biological characteristics of the lake have been described previously in detail by Rawson (1950, 1951, 1953a, b).

DESCRIPTION OF THE FISHERY

Great Slave Lake has been fished commercially since 1945. During the 1950's annual production of whitefish and trout averaged 2.9 million kilograms as the large accumulated stock was exploited. Since the 1950's commercial production of both species has decreased annually and whitefish and trout have reacted differently to exploitation (Keleher 1972). The west end of the lake is now being managed for whitefish production with minimal regard to lake trout which have been unable to withstand commercial gill-netting. Other than the mesh change in 1977 from 5 1/2 in (140 mm) to 5 1/4 in (133 mm), gillnets of 5 1/2 in (140 mm) stretched mesh have been the sole means of exploitation with no restriction on number of nets since 1961. During its history almost the entire lake has been open to commercial fishing although certain areas have been closed to protect Indian subsistence and sport fishing (Fig. 1 and Northwest Territories Fishery Regulations 1979). The east arm of Great Slave Lake (Area VI) was closed to commercial fishing in 1974 and is being managed exclusively for Indian subsistence and sport fishing (Moshenko and Gillman 1978).

A minimum of 25 fish species occur in the lake (Keleher 1972) of which only five are of commercial importance. The major commercial species in decreasing order of importance are lake whitefish, *Coregonus clupeaformis* (Mitchill); lake trout, *Salvelinus namaycush* (Walbaum); inconnu, *Stenodus leucichthys* (Pallas); northern pike, *Esox lucius* (Linnaeus); and wall-eye (pickereel), *Stizostedion vitreum vitreum* (Mitchill). Cisco, *Coregonus* spp., burbot, *Lota lota* (Linnaeus) and longnose sucker, *Catostomus catostomus* (Forster) may constitute up to 40% or more of the total species catch; however, they are culled on the lake due to lack of market demand.

For the management of the commercial fishery the lake is divided into six administrative areas and a portion of the total annual quota of 1,681,900 kilograms round weight of whitefish and trout is allotted to each area (Table 1). The annual quota is based on the period commencing 1 November and terminating on the following 31 October and applies to the combined catch for both the winter and summer fisheries. More detailed histories of the commercial fishery on Great Slave Lake are discussed by Kennedy (1956), Keleher (1972) and Bond and Turnbull (1973). The description of the winter and summer fisheries is summarized by Moshenko et al. (1978).

MATERIALS AND METHODS

FISH PLANT SAMPLING

Monthly summaries of the landings by administrative area of the five commercial species were compiled from the Freshwater Fish Marketing Corporation (FFMC) sales slips by Fisheries and Oceans staff in Hay River. All data were presented in metric units in 1981 since the fishing industry converted to metric, effective June, 1981.

The following table lists the factors used to convert various species and forms to round weight:

Species	Form	Conversion Factor	
Whitefish	dressed	x 1.17	
	Pickereel	dressed	x 1.22
	headless	x 1.39	
Trout	dressed	x 1.21	
	headless	x 1.53	
Pike	dressed	x 1.22	
	headless	x 1.53	
Inconnu	dressed	x 1.16	
	headless	x 1.35	

Production values presented in this report (Tables 2 and 3) include whitefish culls at the plant but do not include an estimate of cull discarded on the lake due to deterioration following extended periods in the nets (usually the result of storms). Fishermen cull these fish as the nets are lifted. Fish which do not meet the market size and quality requirements are further culled by graders at the fish plant and the weight is recorded on the sales slip. Cullage on the lake was not subtracted from the quota again this season. Cullage will be subtracted from the lake quota when management programs provide a good estimate of lake cullage.

Commercial landings of whitefish were sampled at each of the four fish plants: Simpson Island, Wool Bay, Moraine Bay and Hay River (Fig. 1). Commencing in June, 1981, the sample size was reduced from 300 to 200 whitefish per sample period per administrative area after being tested by the t-test. The reduced sample size was found not to be significantly different at the 5% level ($P > 0.05$). Sampling time schedule was also changed from the monthly summer season schedule (June-September) to a year-round schedule as follows:

Winter	- January 1 to March 30
Spring	- June 10 to July 10
Summer	- July 21 to August 21
Fall	- September 1 to September 30

Boxes of fish were selected at random from the catches of the various fishermen as they arrived at the plant. All whitefish in the box, up to a maximum of 70 fish per individual fisherman were sampled. Thus, the sample of 200 whitefish should have been taken from at least three different fishermen. An additional 15 fish were sampled to account for scale samples which were unsuitable for aging. The fish were measured for fork length (± 1 mm) and dressed weight (± 50 g). Scales were taken from the

left side of the fish from the area just above the lateral line and below the dorsal fin.

CATCH PER UNIT OF EFFORT (CPE)

Number of vessel deliveries and whitefish landings (production in kilograms round weight) by weekly intervals for each administrative area (Table 6) were calculated as described by Moshenko et al. (1978; 1981) and Moshenko and Low (1979; 1980).

Total whitefish production, estimates for total numbers of nets used and CPE (kilograms round weight/91 m/24 h) by weekly intervals (Tables 7-13) were calculated as described by Moshenko et al. (1978; 1981) and Moshenko and Low (1979; 1980).

BIOLOGICAL DATA

The scale age was determined by counting the number of completed annuli. Thus, an age 10 fish was in its eleventh year.

Annual mortality rates (natural and fishing) were calculated using the method (all ages known) outlined by Robson and Chapman (1961). The total annual mortality is defined as the number of fish which die during a year, divided by the initial number (Ricker 1975). The right hand descending portion of a catch curve may be used to estimate annual mortality rates if the following assumptions can be met:

- i) constant survival or mortality rates over the range of age classes, and with time,
- ii) constant year class strength (even recruitment), and
- iii) all fish beyond some age are equally vulnerable to the harvesting gear.

Ricker (1975) indicated that the modal age in the catch curve will commonly lie quite close to the first year in which recruitment can be considered effectively complete. Recruitment is defined as the addition of new fish to the vulnerable population by growth among small size categories. In our calculations, we first selected the modal age class and then chose the next older age class to be sure that all fish beyond this age are at the age of effectively complete recruitment and fully susceptible to the gear.

The majority of the data collected during the study were analyzed using the computer facilities at the University of Manitoba as well as a Hewlett Packard (model 9810 A) programmable calculator.

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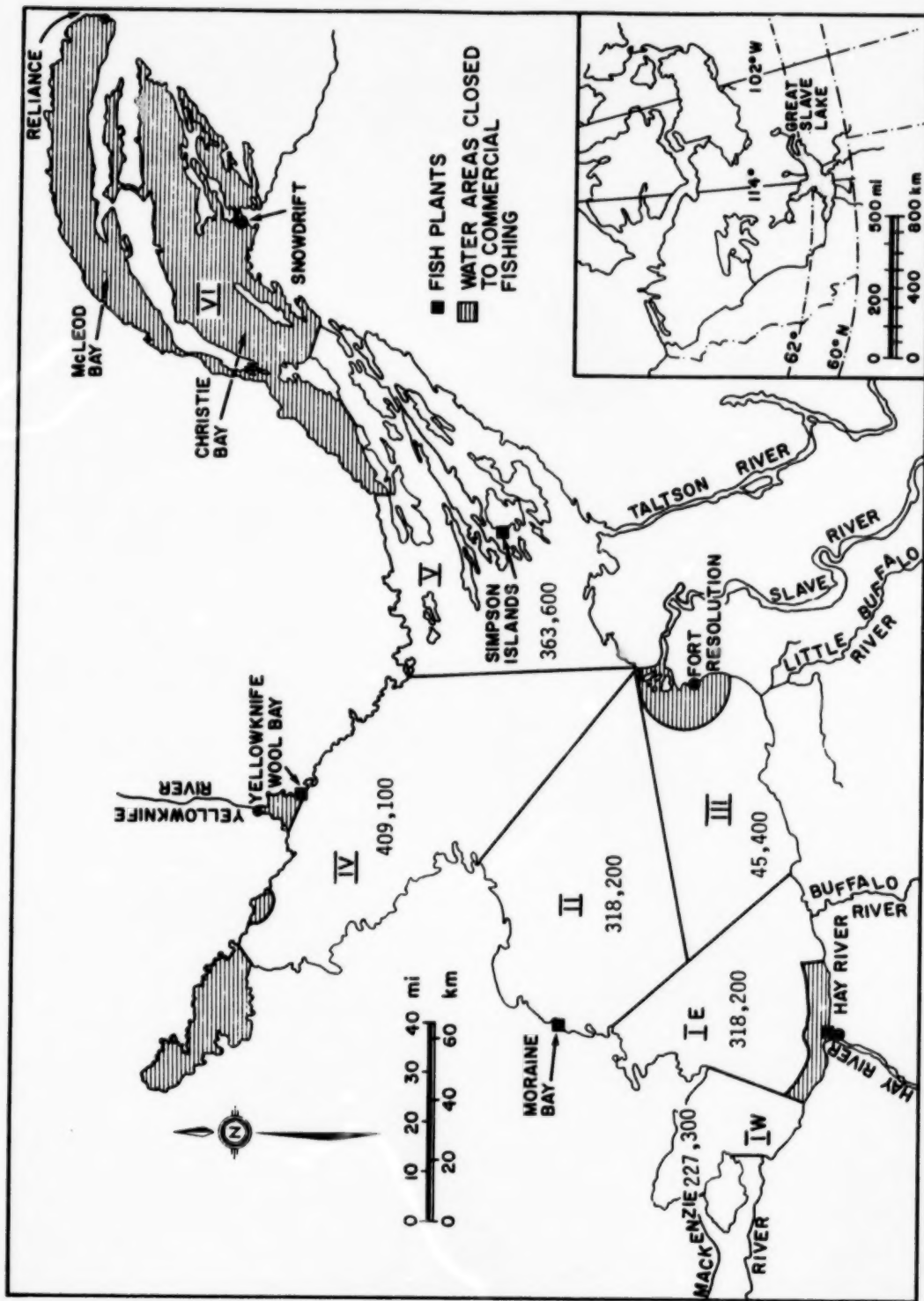


Fig. 1. Map of Great Slave Lake showing the administrative areas and quotas (kilograms round weight) in effect during 1981, areas closed to commercial fishing and the location of fish plants.

Table 1. Commercial quotas in effect on Great Slave Lake during the 1976 to 1981 seasons.

Administrative Area	Commercial Quota of Whitefish and Lake Trout Kilograms round weight (Pounds round weight)				
	1976 ^a	1977,1978 ^b	1979 ^c	1980 ^d	1981 ^e
IW	227,273 (500,000)	227,273 (500,000)	227,273 (500,000)	226,273 (500,000)	227,300
IE	318,181 (700,000)	318,181 (700,000)	318,181 (700,000)	318,181 (700,000)	318,200
II	681,818 (1,500,000)	318,181 (700,000)	318,181 (700,000)	318,181 (700,000)	318,200
III	-	-	45,455 (100,000)	45,455 (100,000)	45,400
IV	622,727 (1,370,000)	409,091 (900,000)	409,091 (900,000)	409,091 (900,000)	409,100
V	325,000 (715,000)	272,727 (600,000)	295,455 (650,000)	363,636 (800,000)	363,600
Total	2,175,000 (4,785,000)	1,545,455 (3,400,000)	1,613,636 (3,550,000)	1,681,818 (3,700,000)	1,681,900

^a November 1, 1975 - October 31, 1976.

^b November 1, 1976 - October 31, 1978.

^c November 1, 1978 - October 31, 1979.

^d November 1, 1979 - October 31, 1980.

^e November 1, 1980 - October 31, 1981.

Table 2. Total production of commercial species (kilograms round weight) by administrative areas, 1981.

Species	Production from each administrative area					Total
	IW	IE	II	III	IV	V
Whitefish	208,563	158,606	201,615	9,121	271,236	247,998
Trout	875	3,227	2,245	2	835	78,004
Pike	62,328	17,542	7,927	8,442	11,489	43,138
Inconnu	1,034	16,203	439	189	1,165	24,269
Walleye	481	1,070	57	546	213	1,752
Total	273,281	196,546	212,283	18,300	284,938	395,161
						1,380,611

Table 3. Production of whitefish and trout (kilograms round weight) from each administrative area for winter and summer seasons, 1981.

Administrative Area	Winter		Summer		Total	
	Whitefish	Trout	Whitefish	Trout	Whitefish	Trout
IW	153,299	249	55,264	626	208,563	875
IE	35,837	276	122,769	2,951	158,606	3,227
II	44,847	426	156,768	1,819	201,615	2,245
III	-	-	9,121	2	9,121	2
IV	75,533	294	195,703	541	271,236	835
V	87,931	1,875	160,067	76,129	247,998	78,004
Total	397,447	3,120	699,692	82,068	1,097,139	85,188
						1,182,327

Table 4. Winter and summer prices (¢/kg) for the commercial fish species, basis loose fresh fish, F.O.B. Hay River Plant, from Great Slave Lake, N.W.T. for 1981.

Species and Form	Winter 1980-81 ¹			Summer 1981 ²
	Nov. 1	Jan 4	Mar 1	June 26 ³
Whitefish - dressed				96
export smokers	115	137	159	111
jumbo (1.8 kg)	137	148	159	96
large (1.4 - 1.8 kg)	115	137	148	88
medium (0.7 - 1.4 kg)	104	126	148	56
small (0.5 - 0.7 kg)	71	82	93	
Lake Trout				107
dressed - medium (1.8 - 3.6 kg)	121	121	121	74
- small (0.9 - 1.8 kg)	88	88	88	118
headless - dressed (3.6 kg)	132	132	132	
Pickereel				202
round - large	203	225	258	202
- medium	203	225	258	153
- small	159	181	203	299
headless dressed - large	236	258	280	299
- medium	236	258	280	233
- small	192	214	236	
Northern Pike				45
head-on dressed (0.9 - 1.8 kg)	57	57	57	76
(1.8 - 4.1 kg)	71	71	71	45
headless - dressed (0.7 kg)	57	57	57	45
(0.3 - 0.7 kg)	57	57	57	
Inconnu				91
headless dressed	82	82	82	

¹ 25% of the price was deducted for fish delivered frozen.

² A freight charge of 6.6¢/kg was deducted for fish delivered to Moraine Bay, Wool Bay and Simpson Islands.

³ Initial 1981 summer prices offered by the Freshwater Fish Marketing Corporation (F.F.M.C.) were 21¢/kg lower than those offered on June 26, 1981 to cover freight costs from Hay River to the main F.F.M.C. plant in Transcona, Manitoba. In addition, 24¢/kg was to be deducted for fish delivered to the three fish stations on Great Slave Lake to cover the operational costs of the packer ship; M. V. Broadhead. The fishermen were unable to operate on these prices and most refused to fish. The government of the Northwest Territories agreed to subsidize freight costs on June 26 allowing the F.F.M.C. to offer the prices listed above.

Table 5. Information on vehicle and vessel operations, number of men and number of nets used in the Great Slave Lake commercial fishery, winter 1980-81 and summer 1981.

Winter Fishery^a (November - May):

	No. Lic. Approved	No. licences issued	No. of vehicles producing	Total no. of Men	No. of Men /Vehicle	No. of Nets /Vehicle
bombardier skidoo	Class A 32 Class B 30	28 20	27 12	67 17	2.5 1.4	30 15
Total	62	48	39	84	-	-

Summer fishery^b (June - October):

	No. Lic. Approved	No. licences issued	No. of vessels producing	Total No. of Men	No. of Men /Vessel	No. of Nets /Vessel
skiffs whitefish boats	Class B 80 Class A 28	59 24	39 18	58 68	1.5 3.8	24 71
Total	108	83	57	126	-	-

^a Information obtained from Conservation and Protection records, Hay River.

^b Last three columns based on 1979 fishery observation records (Moshenko and Low 1980).

Table 6. Number of vessel deliveries and whitefish landings (production in kilograms round weight) by weekly intervals for each administrative area, June to October, 1981.

Week Ending	June				July				August				
	7	14	21	28	5	12	19	26	2	9	16	23	30
AREA IE													
Class A	4	4	8	3	9	6	10	12	12	4	7	6	5
Class B	7	9	21	25	11	14	23	26	32	33	20	14	9
Production	198	275	1545	5825	4853	2230	5588	35035	11376	10145	8979	8780	4880
AREA IW													
Class A	-	-	2	23	10	-	-	-	-	-	-	-	-
Class B	-	-	3	22	5	-	-	-	-	-	-	-	-
Production	-	-	3978	39985	11301	-	-	-	-	-	-	-	-
AREA II													
Class A	-	-	-	-	-	17	23	27	21	28	21	27	25
Class B	-	-	-	-	-	-	-	-	-	-	-	-	-
Production	-	-	-	-	-	13088	4890	12170	9007	29180	21786	16894	19970
AREA III													
Class A	-	-	-	-	-	-	-	-	-	-	-	-	-
Class B	-	-	-	-	-	-	-	-	-	-	-	-	-
Production	-	-	-	-	-	-	-	-	-	-	-	-	-
AREA IV													
Class A	-	-	-	-	-	2	13	21	11	16	14	13	17
Class B	-	-	-	-	-	2	12	24	16	21	26	25	23
Production	-	-	-	-	-	3337	11373	15081	10327	12676	16737	14124	16160
AREA V													
Class A	-	-	-	-	-	-	1	16	17	25	27	22	20
Class B	-	-	-	-	-	-	2	26	29	36	43	35	43
Production	-	-	-	-	-	-	1980	16782	12600	14752	16240	13214	13941
ALL AREAS													
Class A	4	4	10	26	19	25	47	76	61	73	69	68	67
Class B	7	9	24	47	16	16	37	76	77	90	89	74	75
Production	198	275	5523	45810	16154	18655	23831	79068	43310	66753	63742	53012	54951

Table 6. Continued.

Week Ending	September				October				Total
	6	13	20	27	4	11	18	25	
AREA IE									
Class A	6	9	13	9	13	15	-	-	155
Class B	5	10	9	7	3	8	-	-	286
Production	2403	5455	6652	3822	2950	1778	-	-	122769
AREA IW									
Class A	-	-	-	-	-	-	-	-	35
Class B	-	-	-	-	-	-	-	-	30
Production	-	-	-	-	-	-	-	-	55264
AREA II									
Class A	14	13	13	12	-	-	-	-	241
Class B	-	-	-	-	-	-	-	-	-
Production	7284	5329	8771	8399	-	-	-	-	156768
AREA III									
Class A	-	-	-	-	1	-	-	-	1
Class B	-	-	-	-	6	14	14	6	40
Production	-	-	-	-	1956	2692	3416	1057	9121
AREA IV									
Class A	11	13	21	14	-	5	-	-	171
Class B	28	25	24	16	-	-	-	-	242
Production	19421	28541	26647	17615	-	3664	-	-	195703
AREA V									
Class A	19	30	12	5	-	-	-	-	194
Class B	43	53	41	3	-	-	-	-	354
Production	18889	29623	18334	3712	-	-	-	-	160067
ALL AREAS									
Class A	50	65	59	40	14	14	4	2	797
Class B	76	88	74	26	9	22	14	6	952
Production	47997	68948	60404	33548	4906	8134	3416	1057	699692

Table 7. Total whitefish production, estimates for total number of nets used and CPE by weekly intervals for all areas.

Week Ending	Production (kg round wt)	Number of nets used ^a (91 m each)	CPE (kg/91m/24h) ^b
June 7	198	410	0.5
14	275	446	0.6
21	5,523	1,142	4.8
28	45,810	2,692	17.0
Total	51,806	4,690	11.0 (24.4) ^c
July 5	16,154	1,637	9.9
12	18,655	2,063	9.0
19	23,831	4,003	5.9
26	79,068	6,764	11.7
Total	137,708	14,467	9.5 (21.0)
Aug. 2	43,310	5,717	7.6
9	66,753	6,803	9.8
16	63,742	6,501	9.8
23	53,012	6,158	8.6
30	54,951	6,107	9.0
Total	281,768	31,286	9.0 (19.9)
Sept. 6	47,997	4,918	9.8
13	68,948	6,199	11.1
20	60,404	5,521	10.9
27	33,548	3,308	10.1
Total	210,897	19,946	10.6 (23.3)
Oct. 4	4,906	1,156	4.2
11	8,134	1,390	5.8
18	3,416	536	6.4
25	1,057	250	4.2
Total	17,513	3,332	5.3 (11.6)
Season Total	699,692	73,721	9.5 (20.9)

Table 8. Total whitefish production, estimates for total number of nets used and CPE by weekly intervals for Area 1E.

Week Ending	Production (kg round wt)	Number of nets used ^a (91 m each)	CPE (kg/91m/24h) ^b
June 7	198	410	0.5
14	275	446	0.6
21	1,545	946	1.6
28	5,825	663	8.8
Total	7,843	2,465	3.2 (7.0) ^c
July 5	4,853	837	5.8
12	2,230	678	3.3
19	5,588	1,124	5.0
26	35,035	1,320	26.5
Total	47,706	3,959	12.0 (26.5)
Aug. 2	11,376	1,428	8.0
9	10,145	878	11.6
16	8,979	857	10.5
23	8,780	678	13.0
30	4,880	517	9.4
Total	44,160	4,358	10.3 (22.7)
Sept. 6	2,403	516	4.7
13	5,455	819	6.7
20	6,652	1,085	6.1
27	3,822	765	5.0
Total	18,332	3,185	5.8 (12.8)
Oct. 4	2,950	977	3.0
11	1,778	1,209	1.5
18			
25			
Total	4,728	2,186	2.2 (4.8)
Season Total	122,769	16,153	7.6 (16.8)

^a Refer to materials and methods for calculation.

^b Round Weight.

^c (1b/100yd/24h) in brackets.

Table 9. Total whitefish production, estimates for total number of nets used and CPE by weekly intervals for Area IM.

Week Ending	Production (kg round wt)	Number nets used ^a (91 m each)	CPE (kg/91m/24h) ^b
June 7	-	-	-
14	-	-	-
21	3,978	196	20.3
28	39,985	2,029	19.7
Total	43,963	2,225	19.8 (43.7) ^c
July 5	11,301	800	14.1
Total	11,301	800	14.1 (31.1)
Seasonal Total	55,264	3,025	18.3 (40.3)

^a Refer to materials and methods for calculation.

^b Round weight.

^c (1b/100yd/24h) in brackets.

Table 10. Total whitefish production, estimates for total number of nets used and CPE by weekly intervals for Area III.

Week Ending	Production (kg round wt)	Number nets used ^a (91 m each)	CPE (kg/91m/24h) ^b
Oct. 4	1,956	179	10.9
11	2,692	252	10.7
18	3,416	252	13.6
25	1,057	108	9.8
Total	9,121	791	11.5 (25.4)
Seasonal Total	9,121	791	11.5 (25.4)

^a Refer to materials and methods for calculation.

^b Round Weight.

^c (1b/100yd/24h) in brackets.

Table 11. Total whitefish production, estimates for total number of nets used and CPE by weekly intervals for Area II.

Week Ending	Production (kg round wt)	Number nets used ^a (91 m each)	CPE (kg/91m/24h) ^b
July 12	13,088	1,207	10.8
19	4,890	1,633	3.0
26	12,170	1,917	6.4
Total	30,148	4,757	6.3 (14.0) ^c
Aug. 2	9,007	1,491	6.0
9	29,180	1,988	14.7
16	21,786	1,491	14.6
23	16,894	1,917	8.8
30	19,970	1,775	11.3
Total	96,837	8,662	11.2 (24.7)
Sept. 6	7,284	994	7.3
13	5,329	923	5.8
20	8,771	923	9.5
27	8,399	852	9.7
Total	29,783	3,692	8.1 (17.9)
Seasonal Total	156,768	17,111	9.2 (20.2)

^a Refer to materials and methods for calculations.

^b Round Weight.

^c (1b/100yd/24h) in brackets.

Table 12. Total whitefish production, estimates for total number of nets used and CPE by weekly intervals for Area IV.

Week Ending	Production (kg round wt)	Number of nets used ^a (91 m each)	CPE (kg/91m/24h) ^b
July 12	3,337	178	18.7
19	11,373	1,139	10.0
26	15,081	1,923	7.8
Total	29,791	3,240	9.2 (20.3) ^c
Aug. 2	10,327	1,069	9.7
9	12,676	1,514	8.4
16	16,737	1,462	11.5
23	14,124	1,373	10.3
30	16,160	1,621	10.0
Total	70,024	7,039	9.9 (21.9)
Sept. 6	19,421	1,285	15.1
13	28,541	1,373	20.8
20	26,647	1,923	13.9
27	17,615	1,282	13.7
Total	92,224	5,863	15.7 (34.7)
Oct. 4	-	-	-
11	3,664	355	10.3
18	-	-	-
25	-	-	-
Total	3,664	355	10.3 (22.7)
Season Total	195,703	16,497	11.7 (26.2)

^a Refer to materials and methods for calculations.

^b Round Weight.

^c (1b/100yd/24h) in brackets.

Table 13. Total whitefish production, estimates for total number of nets used and CPE by weekly intervals for Area V.

Week Ending	Production (kg round wt)	Number of nets used ^a (91 m each)	CPE (kg/91m/24h) ^b
July 19	1,980	107	18.5
26	16,782	2,314	7.2
Total	18,762	2,421	7.7 (17.0) ^c
Aug. 2	12,600	1,729	7.3
9	14,752	2,423	6.1
16	16,240	2,691	6.0
23	13,214	2,192	6.0
30	13,941	2,194	6.4
Total	70,747	11,229	6.3 (13.9)
Sept. 6	18,889	2,123	8.9
13	29,623	3,084	9.6
20	18,334	1,590	11.5
27	3,712	409	9.1
Total	70,558	7,206	9.8 (21.6)
Season Total	160,067	20,856	7.7 (16.9)

^a Refer to materials and methods for calculations.

^b Round Weight.

^c (1b/100yd/24h) in brackets.

Table 14. Weight composition by market weight intervals for lake whitefish from commercial plant samples on Great Slave Lake, 1981.

MARKET WEIGHT INTERVAL (DRESSED)	AREA IE		AREA IW		AREA II		AREA IV		AREA V		TOTAL	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
NO MARKET	3	<1	-	-	-	-	6	1	-	-	9	<1
(0-1 LB, 0-454 G)												
SMALL	12	2	15	3	26	4	36	5	10	2	99	3
(1-1.5 LB, 455-690 G)												
MEDIUM	578	92	463	90	594	90	596	90	408	94	2639	91
(1.5-3 LB, 681-1362 G)												
LARGE	35	5	33	6	42	6	17	3	16	3	143	5
(3-4 LB, 1363-1816 G)												
JUMBO	3	<1	2	<1	1	<1	5	<1	1	<1	12	<1
(>4 LB, >1816 G)												
TOTAL	631		513		663		660		435		2902	

Table 15. Age composition of commercial whitefish for all areas combined from Great Slave Lake commercial fishery, 1981.

AGE (YR)	NO.	X	FORK LENGTH(MM)		DRESSED WEIGHT (G)	
			MEAN	SD.	MEAN	SD.
5	2	-	356	62.9	550	212.1
6	46	1.7	398	36.5	864	241.7
7	126	4.6	403	31.0	878	201.9
8	211	7.7	410	29.3	927	196.3
9	358	13.0	411	25.0	928	163.7
10	677	24.6	417	26.8	977	188.6
11	696	25.3	422	25.8	996	187.4
12	361	13.1	429	24.0	1038	192.8
13	165	6.0	442	28.9	1112	248.1
14	70	2.5	446	27.0	1166	281.8
15	26	0.9	467	43.8	1313	336.0
16	9	0.3	457	41.7	1228	371.7
17	6	0.2	466	37.3	1325	383.1
TOTAL	2753					
MEAN			421	29.3	991	210.5
MEAN AGE	10.4					

Table 16. Age composition of commercial whitefish for each seasonal period from area IV, 1981.

AGE (YR)	WINTER			SPRING			SUMMER			FALL			TOTAL			
	MEAN		DR. WT. (G)	MEAN		DR. WT. (G)	MEAN		DR. WT. (G)	MEAN		DR. WT. (G)	TOTAL		DRESSED	
	NO.	LEN. (MM)		NO.	LEN. (MM)		NO.	LEN. (MM)		NO.	LEN. (MM)		NO.	LEN. (MM)	WEIGHT(C) MEAN	SD.
6	5	382	740	-	-	-	-	-	-	-	-	-	5	382	36.7	740
7	6	392	800	2	419	1075	-	-	-	-	-	-	8	399	20.2	869
8	34	403	871	9	415	1000	-	-	-	-	-	-	43	405	22.4	898
9	25	410	910	35	415	1019	-	-	-	-	-	-	60	413	24.0	973
10	61	414	906	57	416	1027	-	-	-	-	-	-	118	415	25.5	964
11	89	423	963	52	425	1057	-	-	-	-	-	-	141	423	22.0	998
12	42	431	1031	24	441	1198	-	-	-	-	-	-	66	435	24.1	1092
13	9	444	1106	11	473	1414	-	-	-	-	-	-	20	460	36.1	1275
14	5	463	1330	3	463	1333	-	-	-	-	-	-	8	463	32.9	1331
15	3	493	1583	4	509	1538	-	-	-	-	-	-	7	502	33.0	1557
TOTAL	279			197			-	-	-	-	-	-	476			
MEAN		419	955	427	1090		-	-	-	-	-	-		422	29.6	1011
MEAN AGE	10.4			10.5			-	-	-	-	-	-	10.4			221.1

Table 17. Age composition of commercial whitefish for each seasonal period from area IE, 1981.

AGE (YR)	WINTER			SPRING			SUMMER			FALL			TOTAL					
	MEAN		MEAN DR.	MEAN		MEAN DR.	MEAN		MEAN DR.	MEAN		MEAN DR.	TOTAL					
	LEN.			LEN.			LEN.			LEN.			LEN.		DRESSED			
	(MM)		(G)	(MM)		(G)	(MM)		(G)	(MM)		(G)	(MM)		(G)	(G)		
	NO.	(MM)	(G)	NO.	(MM)	(G)	NO.	(MM)	(G)	NO.	(MM)	(G)	NO.	MEAN	SD.	MEAN	SD.	
6	-	-	-	1	415	900	-	-	-	7	425	1071	8	423	14.2	1050	158.1	
7	-	-	-	5	373	740	1	324	450	10	399	865	16	386	34.7	800	191.5	
8	-	-	-	6	386	872	6	402	842	20	421	998	32	411	36.4	945	251.1	
9	-	-	-	28	404	938	20	405	900	28	417	941	76	409	23.0	929	142.2	
10	-	-	-	79	413	1022	63	416	973	67	428	1052	209	419	26.0	1017	183.4	
11	-	-	-	42	423	1050	61	422	994	47	436	1119	150	427	24.7	1049	190.9	
12	-	-	-	15	430	1117	32	440	1102	20	439	1168	67	437	22.0	1125	160.6	
13	-	-	-	3	463	1233	10	442	1135	6	468	1383	19	453	20.4	1229	203.7	
14	-	-	-	2	467	1625	2	462	1300	-	-	-	4	465	38.4	1463	464.4	
15	-	-	-	-	-	-	2	483	1550	-	-	-	2	483	29.0	1550	353.6	
16	-	-	-	1	534	2000	1	462	1200	-	-	-	2	498	50.9	1600	565.7	
TOTAL	-	-	-	182			198			205			585					
MEAN	-	-	-	415	1025		422	1005		428	1060		422	28.8		1030	208.6	
MEAN AGE	-	-	-	10.2			10.7			9.9			10.3					

Table 18. Age composition of commercial whitefish for each seasonal period from area II, 1981.

AGE (YR)	WINTER			SPRING			SUMMER			FALL			TOTAL					
	MEAN		DR.	MEAN		DR.	MEAN		DR.	MEAN		DR.	FORK			DRESSED		
	LEN.			LEN.			LEN.			LEN.								
	NO.	(MM)	(G)	NO.	(MM)	(G)	NO.	(MM)	(G)	NO.	(MM)	(G)	NO.	MEAN	SD.	MEAN	SD.	
	WEIGHT(G)																	
6	-	-	-	-	-	-	9	375	733	12	429	1054	21	406	35.7	917	233.1	
7	-	-	-	12	403	883	16	389	809	39	429	1029	67	414	28.4	951	195.7	
8	-	-	-	17	400	853	39	406	902	36	438	1100	92	417	28.2	970	188.8	
9	-	-	-	37	408	911	45	410	907	34	436	1084	116	417	24.5	960	162.8	
10	-	-	-	63	416	944	46	424	1001	37	442	1126	146	425	28.9	1008	198.8	
11	-	-	-	61	427	1080	37	426	1004	27	450	1189	125	432	31.3	1081	237.5	
12	-	-	-	22	428	1052	13	425	1023	10	453	1185	45	432	25.1	1073	185.1	
13	-	-	-	7	437	1150	8	444	1113	6	457	1183	21	445	24.3	1145	178.8	
14	-	-	-	2	454	1200	-	-	-	1	493	1400	3	467	28.2	1267	230.9	
TOTAL	-	-	-	221			213			202			636					
MEAN	-	-	-	418	985		414	943		439	1106		423	29.5		1009	206.7	
MEAN AGE	-	-	-	10.1			9.4			9.0			9.5					

Table 19. Age composition of commercial whitefish for each seasonal period from area IV, 1981.

AGE (YR)	WINTER			SPRING			SUMMER			FALL			TOTAL					
	NO.	MEAN	MEAN	NO.	MEAN	MEAN	NO.	MEAN	MEAN	NO.	MEAN	MEAN	NO.	FORK		DRESSED		
		PORK	DR.		PORK	DR.		PORK	DR.		PORK	DR.		LENGTH(MM)	WEIGHT(G)			
		LEN.	WT.		LEN.	WT.		LEN.	WT.		LEN.	WT.		MEAN	SD.	MEAN	SD.	
		(MM)	(G)		(MM)	(G)		(MM)	(G)		(MM)	(G)		(MM)	(G)	(MM)	(G)	(MM)
5	-	-	-	-	-	-	1	311	400	-	-	-	1	311	-	400	-	
6	-	-	-	6	376	708	2	347	575	-	-	-	8	369	39.7	675	237.5	
7	-	-	-	9	405	844	9	373	667	3	359	583	21	384	31.3	731	166.2	
8	-	-	-	12	402	876	16	402	844	7	378	707	35	397	26.6	827	163.1	
9	-	-	-	32	405	861	39	399	854	13	391	808	84	400	25.4	849	140.9	
10	-	-	-	79	408	923	52	415	935	27	401	854	158	409	26.7	915	172.3	
11	-	-	-	47	412	952	54	418	972	86	404	892	187	410	23.4	930	155.3	
12	-	-	-	20	437	1103	20	424	1023	47	415	955	87	422	26.3	1005	194.6	
13	-	-	-	10	454	1255	6	439	1133	17	442	1156	33	445	36.5	1182	316.9	
14	-	-	-	3	471	1433	4	452	1338	5	436	1100	12	450	20.8	1263	241.3	
15	-	-	-	-	-	-	1	484	1600	3	479	1433	4	480	45.8	1475	342.8	
16	-	-	-	-	-	-	1	450	1150	1	418	1000	2	434	22.6	1075	106.1	
TOTAL	-	-	-	218			205			209			632					
MEAN	-	-	-	413	947		412	931		409	920			411	30.3	933	210.3	
MEAN AGE	-	-	-	10.1			10.1			11.1			10.5					

Table 20. Age composition of commercial whitefish for each seasonal period from area V, 1981.

AGE (YR)	WINTER			SPRING			SUMMER			FALL			TOTAL						
	MEAN		DR. WT. (G)	MEAN		DR. WT. (G)	MEAN		DR. WT. (G)	MEAN		DR. WT. (G)	NO.	FORK		DRESSED WEIGHT(G)			
	PORK			PORK			PORK			LENGTH(MM)									
	LEN.			LEN.			LEN.			MEAN									
	NO. (MM)			NO. (MM)			NO. (MM)			SD.									
5	-	-	-	-	-	-	1	400	700	-	-	-	1	400	-	700			
6	-	-	-	-	-	-	3	381	817	1	390	550	4	383	16.6	730			
7	-	-	-	-	-	-	13	397	862	1	387	600	14	396	19.6	843			
8	-	-	-	-	-	-	8	416	956	1	387	800	9	413	35.6	939			
9	-	-	-	-	-	-	16	427	969	6	413	850	22	423	19.9	936			
10	-	-	-	-	-	-	21	429	1033	25	418	868	46	423	17.6	943			
11	-	-	-	-	-	-	49	429	962	44	413	888	93	421	20.6	927			
12	-	-	-	-	-	-	42	431	985	54	422	931	96	426	20.2	954			
13	-	-	-	-	-	-	33	439	1038	39	425	955	72	431	21.3	993			
14	-	-	-	-	-	-	16	448	1150	27	434	1030	43	439	24.3	1074			
15	-	-	-	-	-	-	8	450	1150	5	429	1010	13	442	36.6	1096			
16	-	-	-	-	-	-	-	-	-	5	449	1140	5	449	38.9	1140			
17	-	-	-	-	-	-	2	476	1525	4	461	1225	6	466	37.3	1325			
TOTAL	-	-	-	-	-	-	212			212			424						
MEAN	-	-	-	-	-	-	430	1003		422	938			426	24.4	970			
MEAN AGE	-	-	-	-	-	-	11.2			12.1			11.7			185.7			

Table 21. Length composition of commercial whitefish for all areas combined from Great Slave Lake commercial fishery, 1981.

LENGTH INTERVAL (MM)	NO.	X	FORK LENGTH(MM)		DRESSED WEIGHT (G)	
			MEAN	SD.	MEAN	SD.
290-299	2	-	296	2.8	375	35.4
300-309	1	-	309	-	450	-
310-319	1	-	311	-	400	-
320-329	7	0.2	325	1.6	480	80.5
330-339	3	0.1	336	3.6	617	160.7
340-349	10	0.3	346	1.8	630	135.8
350-359	17	0.6	356	2.9	632	76.9
360-369	54	1.9	365	3.0	663	72.8
370-379	93	3.2	375	2.8	727	83.6
380-389	166	5.7	384	2.7	780	75.4
390-399	277	9.5	394	2.8	838	80.9
400-409	382	13.2	404	2.9	879	77.6
410-419	396	13.6	414	2.9	940	82.3
420-429	458	15.8	424	2.9	992	84.6
430-439	360	12.4	434	2.7	1059	96.2
440-449	244	8.4	444	2.7	1129	112.8
450-459	168	5.8	454	2.7	1193	109.4
460-469	102	3.5	464	2.7	1284	123.1
470-479	68	2.3	474	2.7	1353	148.6
480-489	34	1.2	483	2.8	1409	179.8
490-499	23	0.8	493	2.3	1528	133.8
500-509	16	0.6	505	2.3	1691	224.5
510-519	7	0.2	513	3.7	1736	74.8
520-529	7	0.2	524	2.7	1864	174.9
530-539	3	0.1	534	2.5	1817	317.5
540-549	2	-	541	0.7	1825	106.1
550-559	1	-	550	-	2100	-
TOTAL	2902					
MEAN			421	29.6	992	212.2

Table 22. Length composition of commercial whitefish for each seasonal period from area IV, 1981.

LENGTH INTERVAL (MM)	WINTER			SPRING			SUMMER			FALL			TOTAL				
	MEAN	MEAN	DR. WT. (G)	MEAN	MEAN	DR. WT. (G)	MEAN	MEAN	DR. WT. (G)	MEAN	MEAN	DR. WT. (G)	FORK		DRESSED		
	PORK	LEN.		PORK	LEN.		PORK	LEN.		PORK	LEN.		WEIGHT(MM)	WEIGHT(G)			
	NO.	(MM)		NO.	(MM)		NO.	(MM)		NO.	(MM)		MEAN	SD.	MEAN	SD.	
330-339	1	332	500	1	339	800	-	-	-	-	-	-	2	336	4.9	650	212.1
350-359	1	354	600	1	358	800	-	-	-	-	-	-	2	356	2.8	700	141.4
360-369	4	367	663	-	-	-	-	-	-	-	-	-	4	367	3.0	663	25.0
370-379	6	375	633	8	377	750	-	-	-	-	-	-	14	376	2.7	700	87.7
380-389	15	385	743	8	384	838	-	-	-	-	-	-	23	384	2.6	776	78.1
390-399	31	394	794	22	395	907	-	-	-	-	-	-	53	394	2.8	841	98.6
400-409	52	404	843	21	404	926	-	-	-	-	-	-	73	404	2.9	867	79.2
410-419	45	414	911	28	414	998	-	-	-	-	-	-	73	414	2.6	945	85.2
420-429	43	424	960	36	424	1057	-	-	-	-	-	-	79	424	2.6	1004	90.6
430-439	36	433	1028	28	434	1114	-	-	-	-	-	-	64	434	2.7	1066	89.0
440-449	32	445	1141	19	444	1208	-	-	-	-	-	-	51	444	2.8	1166	131.0
450-459	12	455	1208	8	454	1250	-	-	-	-	-	-	20	455	2.5	1225	76.9
460-469	10	464	1260	11	465	1350	-	-	-	-	-	-	21	464	2.8	1307	116.5
470-479	3	474	1467	4	473	1400	-	-	-	-	-	-	7	473	2.1	1429	195.5
480-489	2	485	1375	5	481	1420	-	-	-	-	-	-	7	482	2.8	1407	73.2
490-499	3	493	1417	1	495	1450	-	-	-	-	-	-	4	493	2.4	1425	165.8
500-509	3	503	1400	3	508	1683	-	-	-	-	-	-	6	506	2.7	1542	226.8
510-519	-	-	-	4	514	1750	-	-	-	-	-	-	4	514	4.3	1750	100.0
520-529	1	523	2000	3	524	1733	-	-	-	-	-	-	4	524	3.0	1800	163.3
530-539	-	-	-	1	537	1450	-	-	-	-	-	-	1	537	-	1450	-
540-549	-	-	-	1	541	1750	-	-	-	-	-	-	1	541	-	1750	-
TOTAL	300			213			-	-	-	-	-	-	513				
MEAN		420	959		428	1095	-	-	-	-	-	-		423	30.4	1015	225.7

LENGTH INTERVAL (MM)	WINTER			SPRING			SUMMER			FALL			TOTAL				
	MEAN		MEAN	MEAN		MEAN	MEAN		MEAN	MEAN		TOTAL			DRESSED WEIGHT(G)		
	PORK	DR.		PORK	DR.		PORK	DR.		PORK	DR.						
	LEN.	WT.		LEN.	WT.		LEN.	WT.		LEN.	WT.		LENGTH(MM)				
NO.	(MM)	(G)	NO.	(MM)	(G)	NO.	(MM)	(G)	NO.	(MM)	(G)	NO.	MEAN	SD.	MEAN	SD.	
290-299	-	-	-	1	294	400	-	-	-	-	-	-	1	294	-	400	-
300-309	-	-	-	1	309	450	-	-	-	-	-	-	1	309	-	450	-
320-329	-	-	-	1	328	458	1	324	450	-	-	-	2	326	2.8	454	5.7
340-349	-	-	-	1	343	750	-	-	-	-	-	-	1	343	-	750	-
350-359	-	-	-	1	359	700	-	-	-	1	357	600	2	358	1.4	650	70.7
360-369	-	-	-	6	364	708	2	365	775	4	363	600	12	364	2.6	683	107.3
370-379	-	-	-	7	375	779	6	377	767	3	374	617	16	376	2.2	744	96.4
380-389	-	-	-	13	384	842	17	386	815	8	384	813	38	385	2.5	824	86.8
390-399	-	-	-	28	394	873	16	394	863	12	394	813	56	394	2.8	857	78.9
400-409	-	-	-	33	404	953	28	404	886	19	405	913	80	404	2.8	920	82.9
410-419	-	-	-	34	415	997	22	416	961	30	414	960	86	415	2.9	975	80.7
420-429	-	-	-	26	425	1083	37	424	1004	36	425	1021	99	424	3.1	1031	82.0
430-439	-	-	-	18	434	1139	37	435	1061	29	434	1090	84	434	2.9	1088	96.0
440-449	-	-	-	14	443	1225	14	445	1089	26	444	1140	54	444	2.6	1149	108.8
450-459	-	-	-	9	455	1289	13	454	1165	21	454	1238	43	454	2.7	1227	117.7
460-469	-	-	-	4	465	1388	7	463	1286	10	464	1340	21	464	2.9	1331	112.3
470-479	-	-	-	3	471	1317	5	475	1320	10	474	1340	18	474	2.4	1331	112.6
480-489	-	-	-	3	481	1433	1	482	1500	2	483	1450	6	482	1.8	1450	100.0
490-499	-	-	-	-	-	-	3	492	1467	3	492	1583	6	492	1.4	1525	178.2
500-509	-	-	-	1	503	2050	1	503	1800	-	-	-	2	503	0.0	1925	176.8
510-519	-	-	-	1	510	1700	-	-	-	-	-	-	1	510	-	1700	-
520-529	-	-	-	-	-	-	-	-	-	1	525	2100	1	525	-	2100	-
530-539	-	-	-	1	534	2000	-	-	-	-	-	-	1	534	-	2000	-
TOTAL MEAN	-	-	-	206	414	1020	210	422	1001	215	428	1060	631	422	29.1	1027	208.0

Table 24. Length composition of commercial whitefish for each seasonal period from area II, 1981.

LENGTH INTERVAL (MM)	WINTER			SPRING			SUMMER			FALL			TOTAL						
	MEAN		DR.	MEAN		DR.	MEAN		DR.	MEAN		DR.	NO.	FORK LENGTH(MM)		DRESSED WEIGHT(G)			
	LEN.	WT.		LEN.	WT.		LEN.	WT.		LEN.	WT.			LEN.	WT.	MEAN	SD.	MEAN	SD.
	NO.	(MM)		(G)	NO.		(MM)	(G)		NO.	(MM)			(G)	NO.				
320-329	-	-	-	1	325	650	-	-	-	-	-	-	1	325	-	650	-		
330-339	-	-	-	1	337	550	-	-	-	-	-	-	1	337	-	550	-		
340-349	-	-	-	2	347	600	-	-	-	-	-	-	2	347	2.1	600	70.7		
350-359	-	-	-	2	353	625	4	356	600	-	-	-	6	355	3.2	608	37.6		
360-369	-	-	-	4	363	625	8	365	669	1	368	650	13	365	3.5	654	74.9		
370-379	-	-	-	9	375	728	10	373	720	-	-	-	19	374	2.8	724	82.3		
380-389	-	-	-	12	382	767	8	383	806	3	385	750	23	383	3.1	778	61.8		
390-399	-	-	-	25	393	850	25	396	864	4	394	838	54	394	3.1	856	75.0		
400-409	-	-	-	35	404	896	37	404	873	12	403	830	84	404	3.1	879	74.9		
410-419	-	-	-	30	414	962	34	415	934	15	413	900	79	414	3.1	938	76.0		
420-429	-	-	-	40	424	998	40	425	988	30	425	997	110	424	2.7	994	71.1		
430-439	-	-	-	24	435	1100	17	433	1056	47	434	1064	88	434	2.7	1072	81.9		
440-449	-	-	-	16	443	1131	16	442	1050	32	444	1134	64	443	2.8	1113	93.9		
450-459	-	-	-	10	454	1170	6	453	1225	26	454	1175	42	454	2.7	1181	99.4		
460-469	-	-	-	4	465	1225	5	464	1260	20	464	1305	29	464	2.8	1286	104.3		
470-479	-	-	-	6	474	1208	2	474	1325	17	475	1400	25	474	2.8	1348	169.2		
480-489	-	-	-	4	483	1338	2	484	1400	3	484	1483	9	484	2.9	1400	223.6		
490-499	-	-	-	4	493	1625	1	495	1700	2	493	1450	7	493	1.3	1586	106.9		
500-509	-	-	-	2	508	1775	-	-	-	2	505	1675	4	506	2.2	1723	119.0		
510-519	-	-	-	1	511	1750	1	510	1700	-	-	-	2	511	0.7	1725	35.4		
520-529	-	-	-	1	525	1750	-	-	-	-	-	-	1	525	-	1750	-		
TOTAL MEAN	-	-	-	233	419	989	216	414	944	214	440	1109	663	424	29.7	1013	209.1		

Table 25. Length composition of commercial whitefish for each seasonal period from area IV, 1981.

LENGTH INTERVAL (MM)	WINTER			SPRING			SUMMER			FALL			TOTAL						
	MEAN		DR. WT.	MEAN		DR. WT.	MEAN		DR. WT.	MEAN		DR. WT.	NO.	FORK		DRESSED WEIGHT(G)			
	LEN.			LEN.			LEN.			LENGTH(MM)									
	NO.	(MM)		(G)	NO.		(MM)	(G)		NO.	(MM)			(G)	NO.		MEAN	SD.	MEAN
290-299	-	-	-	-	-	-	1	298	350	-	-	-	1	298	-	350	-		
310-319	-	-	-	-	-	-	1	311	400	-	-	-	1	311	-	400	-		
320-329	-	-	-	-	-	-	4	324	450	-	-	-	4	324	1.0	450	40.8		
340-349	-	-	-	3	345	600	4	346	638	-	-	-	7	346	1.7	621	155.1		
350-359	-	-	-	1	355	600	2	359	650	2	354	600	5	356	3.6	620	83.7		
360-369	-	-	-	8	363	656	8	367	681	6	365	633	22	365	3.0	659	59.0		
370-379	-	-	-	14	376	714	10	374	715	15	375	730	39	375	3.1	721	57.0		
380-389	-	-	-	31	384	768	9	384	767	26	384	779	66	384	2.8	772	56.2		
390-399	-	-	-	31	394	810	30	395	838	31	395	826	92	394	2.8	824	64.4		
400-409	-	-	-	18	404	864	25	403	876	47	404	894	90	404	2.9	883	55.7		
410-419	-	-	-	31	414	950	32	414	931	29	414	941	92	414	2.9	941	70.3		
420-429	-	-	-	27	424	994	32	424	983	29	423	1002	88	424	3.0	993	72.5		
430-439	-	-	-	18	434	1086	24	434	1008	11	434	1055	53	434	2.6	1044	106.8		
440-449	-	-	-	16	444	1138	8	445	1156	11	444	1164	35	444	2.4	1150	84.9		
450-459	-	-	-	12	454	1204	14	454	1211	4	454	1163	30	454	2.8	1202	102.1		
460-469	-	-	-	7	464	1229	5	463	1280	4	465	1200	16	464	2.6	1238	137.2		
470-479	-	-	-	2	477	1400	1	475	1500	-	-	-	3	476	1.0	1433	76.4		
480-489	-	-	-	3	482	1600	2	482	1400	-	-	-	5	482	2.5	1520	201.9		
490-499	-	-	-	3	494	1567	-	-	-	1	491	1500	4	494	3.7	1550	57.7		
500-509	-	-	-	3	504	1850	-	-	-	1	502	1500	4	504	2.1	1763	228.7		
530-539	-	-	-	-	-	-	-	-	-	1	532	2000	1	532	-	2000	-		
540-549	-	-	-	-	-	-	-	-	-	1	540	1900	1	540	-	1900	-		
550-559	-	-	-	-	-	-	1	550	2100	-	-	-	1	550	-	2100	-		
TOTAL	-	-	-	228	-	-	213	-	-	219	-	-	660	-	-	-	-		
MEAN	-	-	-	413	952	-	411	927	-	408	917	-	411	30.4	-	932	211.7		

Table 26. Length composition of commercial whitefish for each seasonal period from area V, 1981.

LENGTH INTERVAL (MM)	WINTER			SPRING			SUMMER			FALL			TOTAL						
	MEAN		DR. WT.	MEAN		DR. WT.	MEAN		DR. WT.	MEAN		DR. WT.	NO.	FORK		DRESSED WEIGHT(G)			
	LEN.			LEN.			LEN.			LENGTH(MM)									
	NO.	(MM)		(G)	NO.		(MM)	(G)		NO.	(MM)			(G)	NO.		(MM)	(G)	MEAN
350-359	-	-	-	-	-	-	2	357	650	-	-	-	2	357	2.1	650	141.4		
360-369	-	-	-	-	-	-	1	362	650	2	365	650	3	364	3.5	650	50.0		
370-379	-	-	-	-	-	-	3	378	900	2	373	675	5	376	3.6	810	163.6		
380-389	-	-	-	-	-	-	4	384	763	12	385	708	16	385	2.2	722	83.6		
390-399	-	-	-	-	-	-	9	395	811	13	394	788	22	394	2.7	798	95.7		
400-409	-	-	-	-	-	-	19	404	839	36	405	824	55	404	2.7	829	71.2		
410-419	-	-	-	-	-	-	33	415	888	33	414	891	66	414	2.8	889	80.6		
420-429	-	-	-	-	-	-	37	425	942	45	424	922	82	424	2.9	931	78.4		
430-439	-	-	-	-	-	-	39	435	1031	32	434	994	71	435	2.7	1014	95.7		
440-449	-	-	-	-	-	-	26	444	1065	14	443	1061	40	444	2.9	1064	114.9		
450-459	-	-	-	-	-	-	18	454	1158	15	453	1117	33	454	2.7	1139	115.1		
460-469	-	-	-	-	-	-	9	463	1211	6	462	1258	15	463	2.2	1230	142.4		
470-479	-	-	-	-	-	-	8	475	1381	7	473	1286	15	474	3.1	1337	136.9		
480-489	-	-	-	-	-	-	4	482	1188	3	485	1467	7	483	3.2	1307	214.9		
490-499	-	-	-	-	-	-	2	495	1500	-	-	-	2	495	4.9	1500	70.7		
520-529	-	-	-	-	-	-	1	520	2000	-	-	-	1	520	-	2000	-		
TOTAL	-	-	-	-	-	-	215	-	-	220	-	-	435	-	-	-	-		
MEAN	-	-	-	-	-	-	430	1003	-	423	938	-	426	24.5	-	970	184.9		

Table 27. Annual mortality rates for commercial whitefish for each seasonal period from each area in 1981.

Area	Age-Classes Used	Survival (S)	SE of S	Var of S	Annual Mortality Rate(A), where $A = 1-S$
<u>IW</u>					
Winter	12-15	0.3256	0.0501	0.0025	0.6744
Spring	11-15	0.4329	0.0385	0.0015	0.5671
Total Season	12-15	0.3631	0.0382	0.0015	0.6369
<u>IE</u>					
Spring	11-16	0.3404	0.0485	0.0024	0.6596
Summer	11-16	0.3989	0.0365	0.0013	0.6011
Fall	11-16	0.3077	0.0449	0.0020	0.6923
Total Season	11-16	0.3571	0.0246	0.0006	0.6429
<u>II</u>					
Spring	11-14	0.3158	0.0401	0.0016	0.6842
Summer	11-14	0.3372	0.0505	0.0026	0.6628
Fall	11-14	0.3676	0.0578	0.0033	0.6324
Total Season	11-14	0.3322	0.0276	0.0008	0.6678
<u>IV</u>					
Spring	11-14	0.3828	0.0427	0.0018	0.6172
Summer	12-16	0.4038	0.0670	0.0045	0.5962
Fall	12-16	0.3571	0.0450	0.0020	0.6429
Total Season	12-16	0.3598	0.0327	0.0011	0.6402
<u>V</u>					
Summer	12-17	0.4975	0.0353	0.0012	0.5025
Fall	13-17	0.4626	0.0409	0.0017	0.5374
Total Season	13-17	0.4390	0.0315	0.0010	0.5610
Total Lake	12-17	0.4138	0.0149	0.0002	0.5862